Air Quality Summary—June 2009

Baton Rouge Area

OZONE

There were five days with violations of the National Ambient Air Quality Standard (NAAQS) for ozone in the Baton Rouge area during the month of June 2009. See the chart below for detailed information.

An Ozone Action Day (Code Orange or Unhealthy for Sensitive Groups) was called on Saturday, June 6, 2009 for the Baton Rouge area.

$PM_{2.5}$

There were no violations of the NAAQS for $PM_{2.5}$ in the Baton Rouge area during the month of June 2009. Please see the chart on the next page for detailed information on $PM_{2.5}$ levels throughout the state in June.

Other Areas of the State

OZONE

There were three days with violations of the standard for ozone in the Lake Charles area during the month of June 2009. See the chart below for detailed information.

An Ozone Action Day (Code Orange or Unhealthy for Sensitive Groups) was called on Saturday, June 6 for the Lake Charles and New Orleans areas.

$PM_{2.5}$

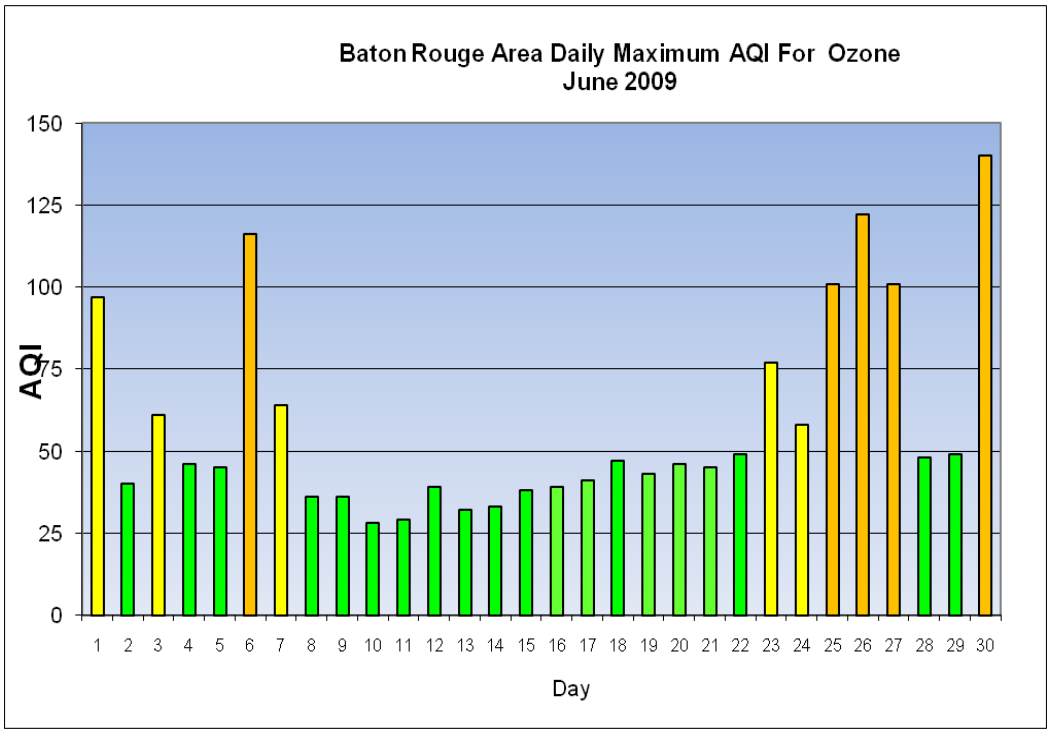
There were no violations of the NAAQS for $PM_{2.5}$ for any area of the state during the month of June 2009. Please see the chart on the next page for detailed information on $PM_{2.5}$ levels throughout the state in June.

Statewide 8-HR Ozone Readings /AQI
Above 75 ppb

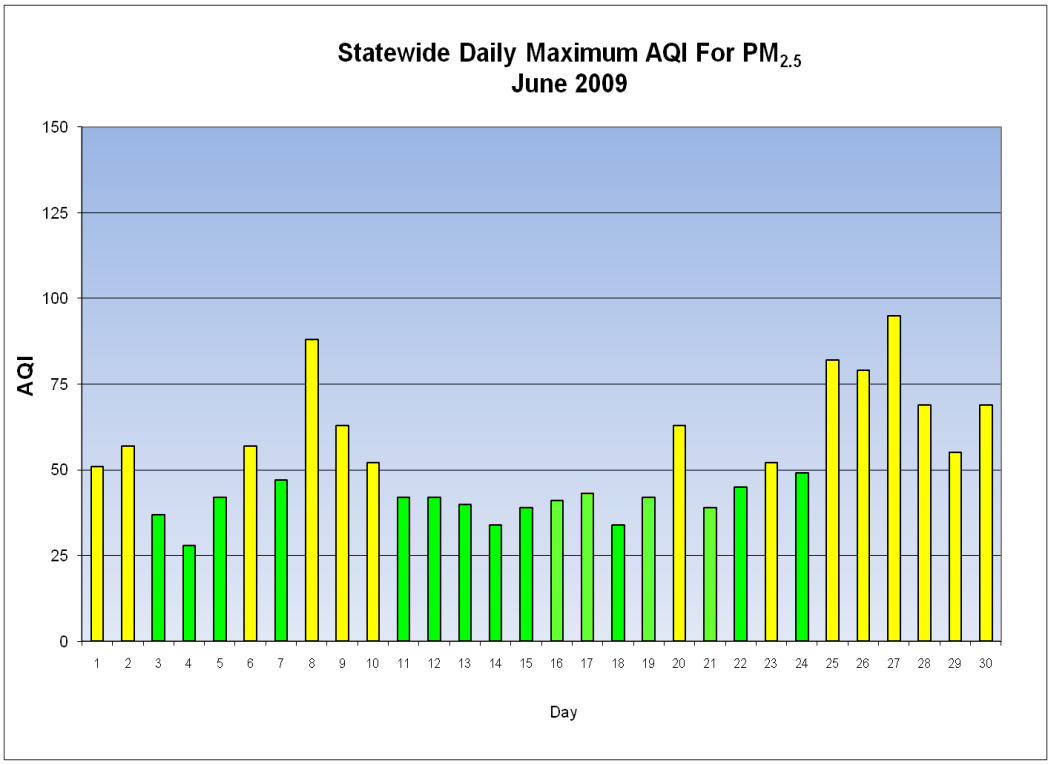
DATE	AQI	8-HR OZONE Concentration (ppb)	MONITORING SITE
6/6/09	119	83	Vinton
	116	82	LSU
	111	80	Baker
	106	78	Capitol
6/25/09	104	77	Garyville
	101	76	LSU
	101	76	Bayou Plaquemine
	101	76	Carville
6/26/09	122	84	LSU
	104	77	New Roads
	101	76	Capitol
	101	76	Vinton

DATE	AQI	8-HR OZONE Concentration (ppb)	MONITORING SITE
6/27/09	101	76	Pride
6/30/09	140	91	Carville
	127	86	Bayou Plaquemine
	127	86	Carlyss
	124	85	Vinton
	116	82	LSU

Air Quality Summary—June 2009



AQI AIR QUALITY INDEX	
0-50	Good
51-100	Moderate
101-150	Unhealthy for Sensitive Groups
151-200	Unhealthy
201-300	Very Unhealthy



Statewide High PM2.5 24-Hour Average Readings - June 2009

DAY	UG/m3	AQI	SITE
1	15.6	51	Thibodaux
2	17.9	57	French Settlement
3	11.3	37	Capitol
4	8.5	28	Thibodaux
5	13	42	Port Allen
6	18	57	Port Allen
7	14.4	47	Chalmette Vista
8	30.5	88	Westlake
9	20.4	63	Thibodaux
10	15.9	52	Thibodaux
11	13	42	Thibodaux
12	12.8	42	Thibodaux
13	12.2	40	Thibodaux
14	10.4	34	Shreveport Airport
15	11.9	39	Shreveport Airport
16	12.6	41	Thibodaux
17	13.2	43	Chalmette Vista
18	10.5	34	Chalmette Vista
19	12.9	42	Chalmette Vista
20	20.4	63	French Settlement
21	11.9	39	French Settlement
22	14	45	Port Allen
23	16	52	Port Allen
24	15.1	49	Shreveport Airport
25	28	82	Port Allen
26	27	79	Port Allen
27	33.2	95	Shreveport Airport
28	23	69	Shreveport Airport
29	17	55	Port Allen
30	23	69	Port Allen

Baton Rouge Climate Summary—June 2009

*Prepared by: Jay Grymes

(based on available preliminary data as of July 20, 2009)

June 2009's monthly temperature averaged 83.2ºF for Baton Rouge's Metro Airport, 3.5º above the June 30-year normal and ranking June 2009 as the *third warmest June for that location since at least 1905* and the warmest June since 1953! June 2009 rainfall at Metro Airport totaled a mere 0.59", the *fourth driest June for that location since 1888* and the driest June since 1979!

June 2009 makes eight consecutive months -- and 26 of the past 30 months -- with above-average monthly temperatures. Four months of 2009 -- January, February, March & June -- have been more than 3º above the norm, helping to make the first half of 2009 one of the five warmest January-to-June periods for Metro AP in the past 80 years. June is the fifth month of 2009 with below-average rain at Metro AP; the airport's six-month total stands at a modest 18.38", only 56% of normal and ranking among the ten driest first-halves of a year since 1930.

June's oppressive heat and near record-low rainfall was courtesy of a persistent upper-air atmospheric ridge which was frequently centered over the Southern Plains or Lower Mississippi Valley. This feature inhibited cloud development, not only reducing rainfall but allowing more solar energy to reach the surface and drive daytime temperatures to record and near-record highs. What is especially noteworthy is that daily temperatures for six of the first seven days of June were below-average, but were above the norm for every day thereafter. The latter half of June saw fifteen consecutive days with highs at or above 95º -- including eight straight days with highs running between 98º and 100º to close-out the month. Those were more than enough to counter June's relatively mild, pleasant start.

Table 1: Average "daylight hours" sky conditions (to 12,000 ft) during June 2009, based on automated ASOS observations from Baton Rouge's Metro Airport.

Sky Condition: Sunrise to Sunset (Sky Coverage)	Clear to Mostly Sunny (0/10ths – 3/10ths)	Partly Cloudy / Partly Sunny (4/10ths – 6/10ths)	Mostly Cloudy to Cloudy (7/10ths – 10/10ths)
No. Days	16	13	1

Table 1 reflects those conditions leading to elevated solar loads at the surface during June, with more than half of the month categorized as "clear to mostly sunny" and only one day being rated as mostly cloudy during daylight hours. Given a long-term average of ten raindays for the month, one would expect something closer to 7 to 10 June days with significant cloud cover.

June daylight hours (official Sunrise-to-Sunset period, excludes 'Civil Twilight') ranged from approximately 14.0 hours (June 1) to 14.1 hours (June 30). The June solstice -- the official start of the Northern Hemisphere summer -- occurred at 12:45 AM on June 21, with a sunshine period of approximately 14.1 hours.

Table 2: June 2009 rainfall for selected rainfall reporting stations across the greater Baton Rouge metro area. (Data are preliminary and provided courtesy of the LSU Southern Regional Climate Center.)

NWS Location	Monthly Rainfall	Monthly DFN	No. Days ≥ 0.01"	No. Days ≥ 1.00"
BR - Metro AP	***0.59"***	***-4.74"***	***3***	***0***
NWS Cooperative Network Sites				
BR - Concord Estates	0.64"	-5.33"	6	0
BR - Sherwood Forest	0.86"	-4.52"	5	0
Brusly 2 W	0.93"	-4.42"	2	0
Central	M	M	M	M
Clinton - LDAF	M	M	M	M
Denham Springs	1.03" ***(i)***	-4.28"	1	1
Gonzales	0.57"	-5.59"	3	0
Jackson 3 E	0.20" ***(i)***	--	1	0
Livingston	1.78"	-3.97"	4	0
New Roads	0.25" ***(i)***	-4.32"	1	0
Oaknolia	1.18"	-3.84"	5	0
Port Allen	M	M	M	M
Plaquemine 2 N	0.61"	-4.73"	2	0
St. Francisville	M	M	M	M
Zachary	0.72"	-4.61"	3	0
LSU AgCenter LAIS Automated Stations				
LAIS - Ben Hur Farm	1.22"	--	6	0
LAIS - Burden Plantation	2.09"	--	5	1
LAIS - St. Gabriel Res Sta	0.27" ***(i)***	--	3	0
CoCoRaHS Volunteer Observers				
Old Jefferson 0.9 W (LA-EB-21)	1.29" ***(i)***	--	4	0
Shenandoah 0.8 W (LA-EB-36)	1.42"	--	5	0
Monticello 3.0 ENE (LA-EB-19)	2.19"	--	4	1
Brownfields 5.8 NE (LA-EB-9)	0.25"	--	2	0
Baton Rouge 2.5 E (LA-EB-27)	0.72"	--	3	0
Baton Rouge 2.7 SW (LA-EB-2)	0.78"	--	5	0
Zachary 3.5 WNW (LA-EB-28)	0.54"		3	0
LSU Campus (LA-EB-33)	0.19"	--	3	0

DFN - Departure-from-Normal "--" - Normals Not Available
M - Monthly Report Unavailable E - Estimated Value
? - Reported Value, but Dubious

"Average" rainfall for the month of June ranges between 5" to 6", and the listing in Table 2 confirms that not a single site came close. Of the 23 reporting sites, only two topped 2" of rain for the month, and only eight recorded more than 1" for all of June. June's metro area (unweighted) regional average for these 23 stations is 0.88", with 0.72" as the median. Historical records indicate that the metro area averages ten days-with-rain during June, but most of the reporting sites noted less than half that number during June 2009.

The ASOS platform at Metro Airport reported thunder on just 5 dates during June 2009, which is half the monthly average according to the Baton Rouge ***"Normals, Means and Extremes"*** (NOAA/NCDC). June 2009 records note 15 dates with fog (mainly early morning 'radiational' fogs), with "heavy" fog" (visibility less than 1/4-mile) reported on June 3 and June 9. The ASOS reported a monthly-average wind speed of 5.9 mph for June 2009, near June's 25-year average of 5.8 mph. Daily wind speeds averaged below 5.0 mph on six dates and never reached or exceeded 10.0 mph during the month.

Louisiana's intensifying spring drought finally caught the full attention of the weekly ***U.S. Drought Monitor*** (DM) authors, with the DM declaring most of south Louisiana under "moderate drought" and almost all of the remainder of the state as "abnormally dry" by the second half of the month (Figure 3). Primary impacts of the regional drought were noted within the agricultural sector. Fortunately, relatively few communities were reporting water shortages, although low water-pressure was a common problem, especially in the afternoons and evenings, due to the high demand for lawn and garden watering.

The Outlook:

Correction to May Summary: In the May report, the Summer Outlook included a statement, " ... transition to the "cool" phase of the multi-year ENSO[1] cycle (*El Niño*) is possible or even likely over the coming months." Clearly this is an error, as *El Niño* reflects "warm" SST anomalies over the equatorial Pacific. My apologies for any confusion that this may have caused. *Jay Grymes*

Most of the Baton Rouge metro area has received much-needed rain during July, and as of late July the persistent upper-air ridge that created the hot-and-dry conditions during May, June and early July appears to have 'weakened' and shifted out of the region. While weather patterns are expected to return to something more "typical" across south Louisiana in the coming weeks, one- and three-month outlooks by the NWS Climate Prediction Center indicate slightly above-average chances for warmer-than-normal and drier-than-normal conditions to continue for the region.

The NWS Climate Prediction Center has now "officially" declared that an *El Niño* is in place over the equatorial Pacific Ocean, with the "warm" phase of the ENSO cycle likely to persist through the 2009-2010 winter. Although ENSO phases have little if any notable impact on local weather during the summer and early autumn, *El Niño* conditions in the mid/late summer and early fall are associated with a modest reduction in tropical-weather activity over the Atlantic Basin, largely attributed to increased mid- and upper-level windshear over the basin.

Figure 1: June 2009 *Daily Max/Min Temperatures and Precipitation* as recorded by the LSU AgCenter/LAIS Weather Station located at LSU-Ben Hur Farm (Nicholson Drive).

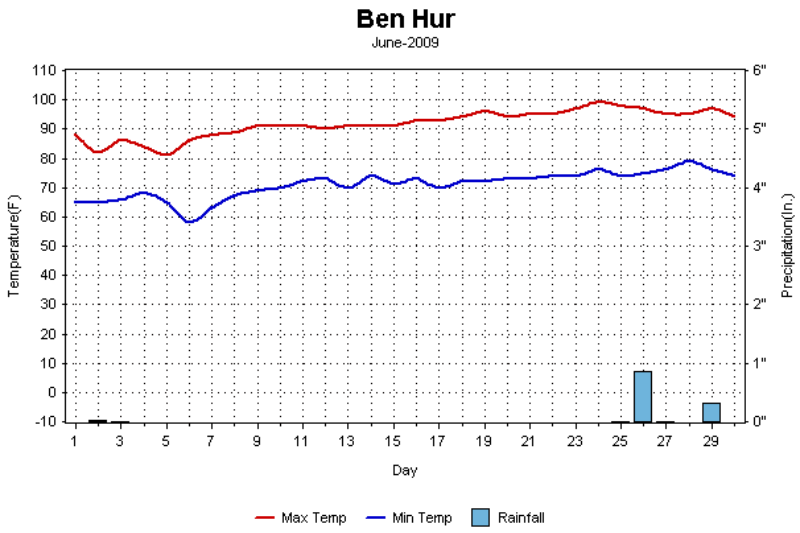


Figure 2: June 2009 *Daily Solar Radiation and Max/Min Soil Temperatures (4 in. depth)* as recorded by the LSU AgCenter/LAIS Weather Station located at LSU-Ben Hur Farm.

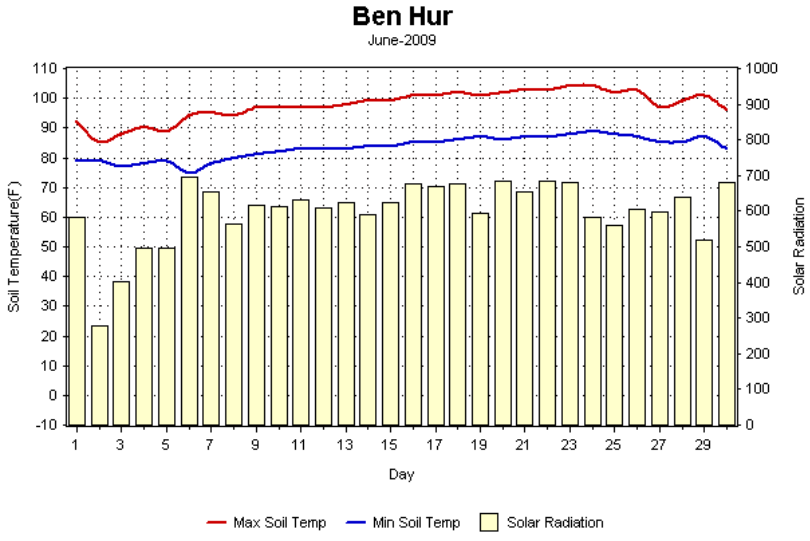
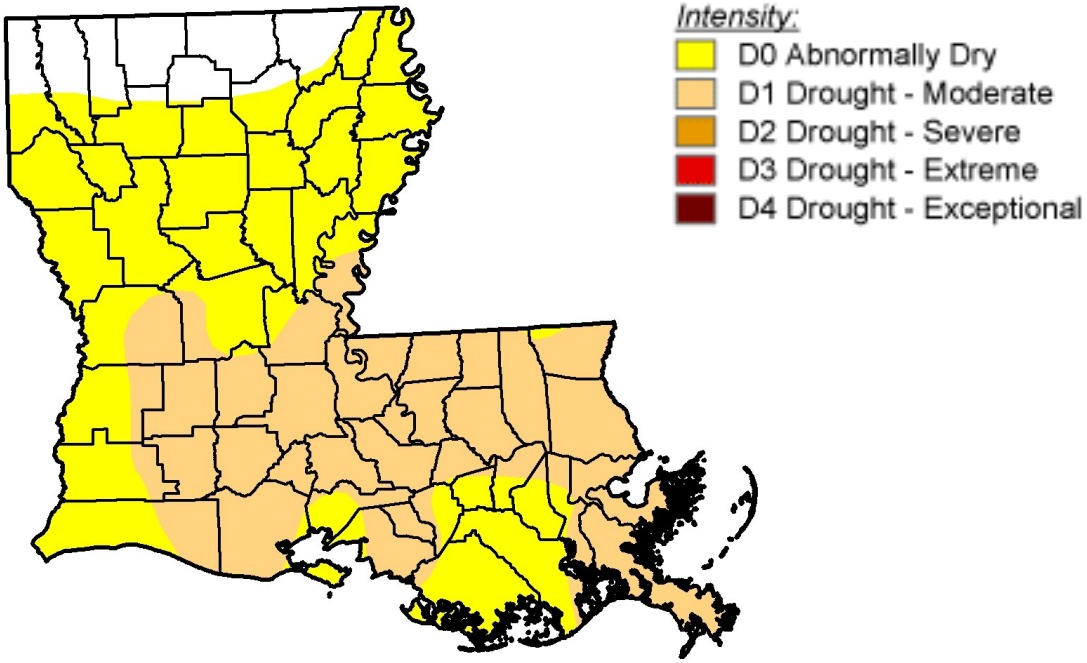


Figure 3: Weekly ***U.S. Drought Monitor*** depiction for 30 June 2009.
Source: *http://drought.unl.edu/DM/*



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- National Weather Service offices serving Louisiana
- LSU Southern Regional Climate Center (SRCC)
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- U.S. Drought Monitor (*http://drought.unl.edu/DM/*)
- NWS Climate Prediction Center
- NWS Storm Prediction Center
- NWS Hydrometeorological Prediction Center
- NOAA/National Climatic Data Center (NCDC)
- WAFB-TV (Ch. 9), Baton Rouge

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21 July 2009

*Jay Grymes, LSU AgCenter Climatologist and WAFB Chief Meteorologist, provides the climatology portion of this report as a free service to DEQ and the citizens of Louisiana.